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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,541	03/01/2002	Benjamin R. Halpern	ABIOS.022A	2245
22896	7590	12/15/2006		
MILA KASAN, PATENT DEPT. APPLIED BIOSYSTEMS 850 LINCOLN CENTRE DRIVE FOSTER CITY, CA 94404			EXAMINER BORIN, MICHAEL L	
			ART UNIT 1631	PAPER NUMBER

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/087,541	Applicant(s) HALPERN, BENJAMIN R.	
	Examiner Michael Borin	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-10, 12-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/26/2006 has been entered.

Status of Claims

Claims 1-15, 17,19 are pending. Claims 1-7, 11 remain withdrawn from further consideration as being drawn to a non-elected groups.

Rejections not reiterated from previous Office action are hereby withdrawn. The rejection under 35 U.S.C. 103(a) is modified to reflect amendment to the claims and to address applicant's arguments.

Claim Rejections - 35 USC § 103.

Claims 8-10,12-19 are rejected under 35 U.S.C. 103(a) as unpatentable over Eriksson et al in view of Arnold et al.

The instant claims are drawn to method for comparing a modified query peptide to a plurality of database peptides. "Modified" means polypeptide modified by any post-translational modification, such as phosphorylation, oxidation, substitution, etc, which alters mass of the query polypeptide. The claimed method comprises the steps of: (a) identifying a fragmentation spectrum comprising a plurality of query mass values for query peptide; (b) dividing spectral range of the modified peptide into intervals, c) evaluating peptide fragments in each interval, and comparing fragments in each of said plurality of intervals with known fragments, scoring the fragments and identifying best matching fragments. A spectral range is the range from zero to the unmodified query peptide's mass. The claims are now amended to add a step specifying that scores of the mass ratio comparison for each range of a query peptide fragment and known peptides is summed up before the identifying step.

Eriksson et al (US Patent 6,466,010) teaches method for assessing significance of protein identification. The method comprises steps of generating mass data for fragments of a query polypeptide (e.g., claim 1) wherein the polypeptide may have post-translational modifications (see col. 9, lines 42-44; claim 28) and compared to protein database, wherein the database comprises information on polypeptides which exhibit modifications. The query polypeptide is cleaved into a parts by a method that produces constituent parts in a predictable way (claim 42), and comparison can be constrained within a chosen mass range (claims 45, 47).

With regard to scoring, Eriksson teaches that mass comparison is scored with the score scores denoting a degree of similarity between data. A comparison is

performed until sufficient quantity of scores is selected. See col. 8 and col. 12, first and second paragraph.

Eriksson et al does not teach apportioning the spectral range into plurality of divisions.

Arnold et al teaches that matching of results of mass spectrometry with databases can be substantially improved by dividing spectral range into intervals. The reference teaches that dividing spectral range into intervals allows fine-tuning of correlation analysis and yields correlation indices that are more sensitive to spectral differences. See abstract, and p. 635. For example mass range from 3.5 to 10 kDa was divided into 13 intervals of 500 Da each before running comparative analysis. See p. 631, left column, bottom.

It would be *prima facie* obvious to one skilled in the art at the time the invention was made to be motivated to divide spectral range into plurality of divisions while using method of Eriksson et al because such subdivision into intervals was shown by Arnold to be beneficial for more precise detection and determination of spectral differences which is a desirable feature for spectral analysis of modified peptides in the method of Eriksson et al .

With regard to summing up the scores obtained from the intervals, as now addressed in the claims, Eriksson et al apparently would not teach such summing up because the method compares scores obtained for the entire molecule. Col. 8, lines 23-25. Therefore, as one would be motivated to divide spectral range into plurality of divisions while using method of Eriksson et al, as addressed above, and because Eriksson et al compares scores obtained for the entire molecule, one would be then motivated to sum up the scores obtained for intervals.

Double Patenting

Claim 8-10,12-19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of copending Application No. 10/241751. The rejection is maintained for the reasons of record.

Applicant has indicated previously that filing Terminal Disclaimer will be considered upon identification of allowable subject matter in the instant application. In turn, Examiner will revise the issue of double patenting upon identification of allowable subject matter in the instant application.


Conclusion.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Borin whose telephone number is (571) 272-0713. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 Michael Borin, Ph.D.
Primary Examiner
Art Unit 1631

mlb